

Low-Power Radio Module 868 MHz

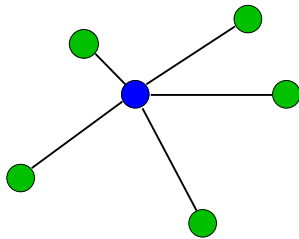
with integrated antenna

Key Features

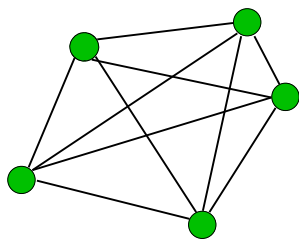
- Low-cost OEM radio module for the 868 MHz SRD band
- Compact dimensions: 17 x 42 x 4 mm
- Supports low-power applications and WOR (wake-on radio)
- Integrated AMBER RF stack with extensive functions
- Flexible addressing with up to 255 nodes in 255 networks
- Integrated ceramic antenna, optional: external antenna connection
- Complies with requirements of R&TTE Directive 1999/5/EC
- Tape & Reel packaging for automatic component placement
- Compatible with AMB8425, but more powerful microprocessor plus integrated antenna



Network Topologies



Star



Peer-to-Peer

Description

The AMB8520 is a compact and low-cost radio data transmission module for wireless half-duplex communication. The integrated microprocessor controls data communication, packet handling and checksum generation, addressing, monitoring of channel access and re-transmission of lost packets. The host system does not have to perform any radio-specific tasks.

The module can be configured in many ways and supports data transfer with fast channel and address switching. The quality of the radio link can be assessed using the received signal strength (RSSI value) measured by the device.

The graphical user interface of the freely available Windows application "AMBER-ACC" makes it easy to set operating parameters.

The AMB8520 is designed as a SMT device and is suitable for automatic component assembly (tape and reel packaging optional).

Using software stacks offered by Texas Instruments and AMBER wireless, the module can also be used as a platform for customer-tailored solutions.

Interfaces

The AMB8520 is connected to a host system via the UART interface with bit rates of up to 115.2 kbaud. Other pins are used for data flow control and to switch between operating modes.

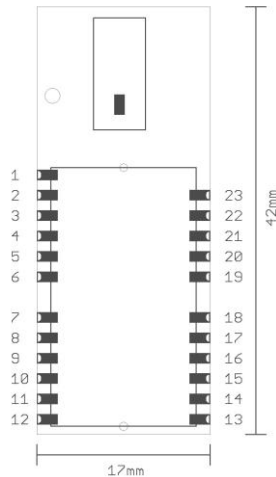
An SPI interface is optionally available (separate firmware).

Using appropriate firmware, the module is also suitable for autonomously recording digital or analogue signals.

Range of Application

Data collection, monitoring, remote control and sensor networks. Its compact dimensions and low power consumption features make this radio module an ideal solution for battery-powered devices.

Dimensions



Pin Assignment

No.	Pad Name	I/O	Description
1	ANTENNA	-	Antenna connection (optional)
2,23	GND	-	Negative supply voltage
3	VCC	-	Positive supply voltage
4	UTXD	O	UART transmit
5	URXD	I	UART receive
6	/RTS	O	Flow control
7	/CTS	I	Flow control
8	/DATA_INDICATE	O	Signals incoming data
11	/DATA_REQUEST	I	Triggers packet transmission
13	SLEEP	I	Selection of low-power mode
14	TRX_DISABLE	I	Selection of low-power mode
15	/CONFIG	I	Switches to command mode
19	/RESET	I	Reset
9,10,12,16,17,18,20,21,22	RSVD	-	Reserved (do not connect)

Specifications

Performance	Range*	Up to 500 m (integrated antenna)
	RF data rate	Up to 250 kbps (Gross)
	Interface data rate	Up to 115.2 kbps (UART)
	Output power	Up to 4 dBm e.i.r.p (10 dBm @ 50 Ω)
	RF sensitivity	Down to -109 dBm (-115 dBm @ 50 Ω)
General	Voltage supply	2.2 – 3.6 V
	Current consumption	- TX: typ. 36 mA - RX: typ. 19 mA - Low Power: typ. 2.2 µA
	Dimensions	17 x 27 x 3.5 mm
	Operating temperature	-30 to +85 °C
	Weight	< 2 g
	Antenna	- Integrated chip antenna - External antenna connector (optional)
RF technology	Addressing	Up to 255 nodes on 255 networks
	Frequency range	865.0 – 870 MHz
	Channel spacing	50 kHz
	Modulation	2-FSK, MSK
	Supported topologies	Star, Peer-to-Peer
Conformity	Europe	EN 300 220, EN 301 489, EN 60950, EN 50371

* Range stated assumes line-of-sight. Actual range may vary depending on RF data rate, board integration and environment.

Related Products

- **AMB8520-M** Wireless M-Bus version
- **AMB8520-EV** Evaluation-Kit
- **AMB8465** USB-Stick

Ordering information

Item no.	Description
AMB8520	Radio Module 868 MHz (integrated antenna)
AMB8520-1	Radio Module 868 MHz module (external antenna)
AMB8520-TR	Radio Module 868 MHz, Tape & Reel (integrated antenna)
AMB8520-1-TR	Radio Module 868 MHz, Tape & Reel (external antenna)

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